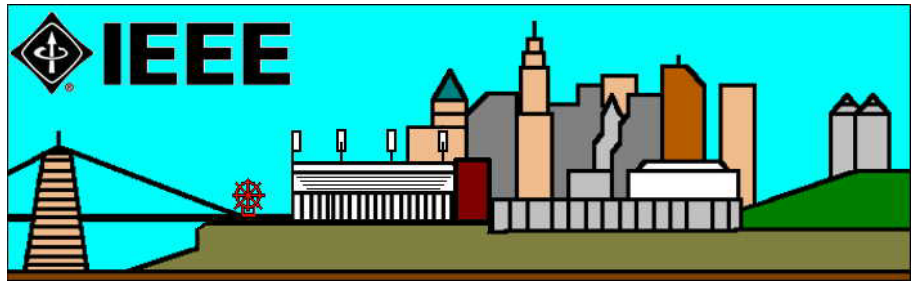


**IEEE CINCINNATI
SECTION
NEWSLETTER
MAY 2003**



MAY MEETING SENIOR PROJECTS

DATE: Thursday, May 22, 2003

PLACE : Raffel's – 10160 Reading Road (see below for directions)

TIME : 5:30 p.m. to 7:00 p.m. - Social Time/Dinner
7:00 p.m. to 8:30 p.m. - Program

COST FOR DINNER: \$15.00 which includes a buffet dinner, soft drinks/coffee, tax & gratuity.
Cost for student members - \$10.00

MENU SELECTIONS: Stuffed Pasta Shells, BBQ'd Ribs, Marinated Char Grilled Chicken Breast, Au Gratin Potatoes, Seasoned Green Beans, Cole Slaw, Tossed Salad, Dinner Rolls & Butter, Assorted Cheese & Fruit Filled Tarts, Coffee, Tea Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks. Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately 3/4 of a mile to Reading Rd. and turn right on Reading.

Please call the Cincinnati Section Voice Mailbox at 513-629-9380, by **Noon, Tuesday, May 20, 2003** if you plan to attend. Please leave your **Name, IEEE Member Number**, and **a daytime telephone number**. You may also make a reservation by e-mailing our Arrangements Chair, Jack Beckmeyer, at j.beckmeyer@ieee.org.

ABOUT THE PRESENTATION: This month's meeting will feature presentations by senior students from the Electrical and Computer Engineering Technology Program at the University of Cincinnati College of Applied Science and the Electronics Engineering Technology Program at Northern Kentucky University that highlight the results of their senior projects. Two students from each university will present their findings in a brief slideshow, demonstrate their projects, and answer questions from the audience.

The CEET-NKU presenters and their topics are:

Scott Dungan - "Automatic Feature Extraction, Storage and Simple Reporting of 2D Electrophoresis Images".
Pam Graydon - "Stoplight for Displaying and Recording Classroom Noise Levels".

The UC-CAS presenters and their topics are:

John Gulasy - "Feedwater Control System Upgrade"
Brian Fullenkamp - "Remote Gas Pressure Monitor"

CHAIR'S MESSAGE

by Fred Nadeau, Section Chair

The April Section meeting was attended by twenty members. We would like to increase meeting attendance throughout the remainder of the year.

This month's presentation on Police Radar and Laser Detectors was given by Dr. Marwan Nusair, a consultant to Michael Valentine, developer of the first commercial radar detector. Dr. Nusair made a sterling presentation of the past, present and future technology of police radar and laser detectors. He stressed that the less expensive commercial detectors have reduced hardware and software technology that lead to frequent and annoying false alarms. Advance detectors, Dr. Nusair stated, provide not only the newly developed police radar capabilities but also provide users with directional information (forward, rear, left or right). Future detectors are already being developed by detector manufacturers to incorporate counters to recent innovations in police radars and will probably be in the market place at the same or nearly the same time as the police capabilities, Dr. Nusair stated. I wish to sincerely thank Dr. Nusair for his presentation to the section and chapter members.

I would like also to stress again that these presentations are being brought to you for your benefit and are intended to expand your knowledge in an attempt to keep you on the cutting edge of technology. Please take the time and opportunity to maintain and expand your expertise.

Fred Nadeau, Section Chair

E-mail: f.nadeau@ieee.org

Phone No. 937-289-2800

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Craig A. Agne	Joe Rachford
Juan Bagadion	Ross Ridler
David C. Jennings	Anshul Sharma
Kevin Kerr	Tom Sokol
Shah Nawaz	Mark R. Spivey
Harry Nelson	Sumanth Vepa
David B. Pettigrew	

We wish to extend our welcome to all of our Section's new members!!!

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Dick Reiman, Historian

Copyright 1992 IEEE. Reprinted with permission from the IEEE publication, "Scanning the Past" which covers a reprint of an article appearing in the Proceedings of the IEEE Vol. 80, No. 11 November 1992.

Walter G. Cady and Piezoelectric Resonators

Fifty years ago this month the PROCEEDINGS OF THE IRE (Institute of Radio Engineers) included a paper by Walter G. Cady and Karl S. Van Dyke on proposed standards for describing the piezoelectric properties of quartz crystals. At the time, both were professors at Wesleyan University in Middletown, Connecticut, and Van Dyke was serving as chairman of an IRE committee appointed to recommend standardization of quartz terminology. Cady had devoted much of his career to research on the theory and applications of piezoelectricity and was a leading authority on the subject.

In their paper, Cady and Van Dyke pointed out that there existed a great deal of confusion and inconsistency in the technical literature on quartz resonators, which had led to an "intolerable state." They outlined what they called a "right-left axial system," which they anticipated would, if adopted, serve to remove all "confusion and ambiguity."

Cady was born in Providence, Rhode Island, in 1874 and graduated from Brown University in 1895. After receiving an M.A. from Brown in 1896, he continued his education in Germany, where he earned a Ph.D. at the University of Berlin in 1900. He worked at a magnetic observatory of the U.S. Coast and Geodetic Survey during 1900 and 1902, joining the Wesleyan faculty in 1902, where he taught until 1946.

Prior to World War I, Cady investigated arc discharges and various types of detectors of wireless waves. During the war, he participated in research on submarine detection conducted at a U.S. Navy facility in New London, Connecticut. It was at this time that he began a study of piezoelectricity using Rochelle salt crystals as transducers. He observed unusual effects in crystals operated near resonance, which led him to the conception of radio frequency applications of crystal resonators. He received two fundamental patents on crystal resonators and their applications to radio in 1923. In April 1922 he published an IRE paper on the use of quartz resonators as frequency standards and for maintaining frequency stability of oscillators. In 1923 he undertook an international comparison of frequency standards by comparing a set of his quartz resonators with existing frequency standards in several European countries..

Cady was an active member of the IRE, becoming a fellow of the institute in 1927 and receiving the Morris N. Liebmann Memorial Award in 1928. He served on the editorial board of the PROCEEDINGS and was editor during 1929, thus becoming the only editor other than Alfred N. Goldsmith until 1954. Cady was the president of the IRE during the year 1932.

Cady and Van Dyke presided over an active long-term research program on piezoelectricity at Wesleyan University during the 1920's and 1930's, and a number of graduate theses were produced by their students. (Van Dyke was born in Brooklyn, New York, in 1892 and graduated from Wesleyan in 1916. He earned a Ph.D. at the University of Chicago in 1921 and then taught at Wesleyan from 1921 to 1960.)

During World War II, Cady again worked on military applications of piezoelectricity. He later estimated that around 75 million quartz plates had been fabricated for the U.S. armed forces during the war. Among the applications were supersonic trainers for radar operators, which employed piezoelectric transducers in liquid tanks to generate realistic echoes on radar indicators. Cady received a contract from the Radiation Laboratory at the Massachusetts Institute of Technology for work related to the supersonic trainer.. In 1946 he published a book entitled Piezoelectricity, and he prepared a revised and enlarged edition that was published in 1964. He continued to do consulting work for the Navy and other clients after his retirement from Wesleyan. He also was an enthusiastic amateur ornithologist and kept detailed bird banding records.

Cady died in 1974, having been preceded in death by Van Dyke in 1967.

In addition to its familiar applications in telecommunications and quartz clocks, piezoelectricity is employed in an exotic, recently developed instrument, the scanning tunneling microscope, to maintain nanometer precision.

*James E. Brittain
School of History , Technology, and Society
Georgia Institute of Technology*

TO SUBSCRIBE TO THE ELECTRONIC NEWSLETTER

This newsletter is only available via e-mail or the Section's web page at <http://ieee.cincinnati.fuse.net/> with the exception of new Section members (one issue only) or members who have specifically requested a copy be delivered through the U. S. Mail.

If you are a new Section member and would like to get this newsletter electronically, please contact Bob Morrison (Editor) at **513-287-3697** or by e-mail at j.r.morrison@ieee.org. Provide your name and member number. In case there are questions, please include a daytime telephone number as well.

If you would like the "Snail Mail" version, you must contact Bob Morrison via the above means or call the Section's voice mail at **513-629-9380**.

Senior Membership Application Workshop

By Jim Everly, Vice-Chairman & PACE Representative

The Cincinnati Section of IEEE will sponsor a senior membership application workshop sometime in the near future. A volunteer group of Cincinnati Section IEEE Senior Members and IEEE Fellows will be available to assist section members with application forms and references. Section members interested in elevating their current member status to Senior Member grade should consider attending the workshop. Arrangements for the workshop are being finalized the Executive Committee and notices will appear in upcoming newsletters. In the interim if you have questions concerning Senior Membership, please feel free to contact Jim Everly, Workshop Chairman, at j.everly@ieee.org.

The senior member grade is the highest IEEE membership grade that can be obtained by application. Often-cited reasons for applying include recognition of accomplishments by peers, professional advancement and personal satisfaction. Many section members qualify for advancement to the senior member grade much earlier than they realize.

In most sections, members are slow to apply because they are not aware of the requirements. It's worth noting that holding the senior member grade in IEEE does not imply being at the age level of a "senior citizen." Mid-career or earlier is an appropriate time for a member to apply for an upgrade.

Members who have as few as 10 total years of professional experience, with five or more of those years as significant performance, can meet the minimum requirements for the senior member grade. Applications are reviewed by panels of the Admission and Advancement Committee in regional meetings held 10 times each year.

The 10-year minimum requirement for professional experience can include three years for an applicable bachelor's degree, one year for a master's, and another one for a Ph.D. The panels look closely at the documentation on the five years of significant experience. It is suggested that applicants attach a résumé to aid the panel. Asking for more than the required three senior members or fellows to complete the confidential reference form is also a good idea, since the application can be considered as soon as the first three are received.

For more information on IEEE senior member grade or to receive a senior member application kit, send an e-mail request to "application-request@ieee.org" or contact the IEEE by phone at 800-678-4333.

IEEE NEWS

IEEE-USA PRESIDENT'S COLUMN: IT'S YOUR CAREER, MANAGE IT

In his latest IEEE-USA President's Column, Jim V. Leonard encourages all IEEE members to take control of managing their careers and to continue learning new skills. Read on at: http://www.todaysengineer.org/April03/prez_column.asp

IEEE-USA TO CO-SPONSOR SECURE IT WORKSHOP - MAY 20

IEEE-USA's Committee on Communications and Information Policy (CCIP) will join the National Institute of Standards and Technology (NIST) and Carnegie Mellon University's Sustainable Computing Consortium in co-sponsoring a May 20 workshop for senior government officials, industry executives, educators, policy leaders, scientists, and engineers, that will address how the federal government, private industry and infrastructure providers can identify, develop and evaluate off-the-shelf, commercially available information technology (IT) products and services for secure system applications. The Secure IT workshop comes in response to the U.S. government's recognition of the need to address security risks associated with the public and private sector components of the critical information infrastructure. For more information on this workshop, visit: <http://www.ieeeusa.org/conferences/secureit/>

ENGINEERING CAREERS CONGRESSIONAL VISITS DAY – JUNE 10-11

U.S. IEEE members concerned about their careers, the effects of globalization, outsourcing and guest labor on engineering employment, and the health of the U.S. engineering workforce are invited to participate in IEEE-USA's Engineering Careers Congressional Visits Day to share their concerns with Members of Congress. The event is scheduled for June 10-11. For more information, visit: <http://www.ieeeusa.org/forum/H1Bcvd/index.html>

FORMER IEEE-USA PRESIDENT TAPPED TO HEAD U.S. ITER PLANNING GROUP

On January 30, Secretary of Energy Spencer Abraham announced that the United States would participate in the negotiations for the construction and operation of the International Thermonuclear Energy Reactor (ITER), a major international magnetic fusion research project which has been hailed by some members of the House Science Committee as "one of the most important endeavors being undertaken by the international energy science community." In March, the Department of Energy selected Princeton Plasma Physics Laboratory's (PPPL) Ned Sauthoff to head the U.S. ITER Planning Group. Sauthoff served as president of IEEE-USA in 2001 and is currently chair of IEEE-USA's Nominations and Appointments Committee. Read an interview with Sauthoff in PPPL's newsletter HOTLINE, in which he discusses opportunities for U.S. researchers, challenges facing the U.S. ITER Team, and the progress expected during the next few years as the international project makes the transition from negotiations to construction, at: [http://www.pppl.gov/publications/pics/hotline_24\(06\).pdf](http://www.pppl.gov/publications/pics/hotline_24(06).pdf)

IEEE AND FLUOR CORPORATION TAKE OVER AS CO-CHAIRS OF EWEEK 2004

In April, the IEEE and Fluor Corporation formally took over as co-chairs of the National Engineers Week (EWEK) 2004 steering committee. Although the two groups have been involved in behind-the-scenes planning for months, the meetings held at the National Society of Professional Engineers headquarters in Alexandria, Va., marked the official kick-off of EWEEK 2004. The IEEE, whose efforts are coordinated through IEEE-USA, last chaired EWEEK in 1992, when it helped launch the popular Future City Competition (FCC) as its legacy project. Plans for 2004 include supporting expansion of FCC to three new U.S. cities, providing a framework to enable FCC's future fundraising efforts, and also to leverage the IEEE's projects relating to precollege education. For more about the EWEEK 2004 chairs, visit: <http://www.eweek.org/site/About/2004chairs.shtml>

IEEE-USA GOVERNMENT FELLOWS FILL KEY ROLES IN CONGRESS

IEEE-USA's 2003 Government Fellows are in place and hard at work, bringing their technical expertise and professional experience to bear on key issues facing the U.S. government. In January, four new IEEE-USA government fellows began their one-year assignments in Washington, while another IEEE-USA Congressional Fellow continued his Senate staff assignment. Find out more about these IEEE members, and how they're actively contributing to the public policy process. In the April edition of IEEE-USA Today's Engineer: <http://www.todaysengineer.org/April03/scene.asp>

IEEE-USA ISSUES ACTION ALERTS ON CAREER, TECHNOLOGY ISSUES

IEEE-USA has released four grassroots action alerts asking U.S. IEEE members to communicate with Congress on the H-1B Temporary Work Visa quota, unsolicited commercial email (i.e. spam), national nanotechnology legislation, and funding for federal computer/IT security programs. The full texts of IEEE-USA's action alerts, along with tools for communicating with Congress, are available online at the IEEE-USA Legislative Action Center at: <http://www.capwiz.com/ieeeusa/>

CALL FOR NOMINATIONS - IEEE-USA OFFICERS

The IEEE-USA Nominations and Appointments Committee has issued a call for nominations for 2004 IEEE-USA officers. The nomination deadline is May 19, 2003. More details and nomination forms are now available online at: <http://www.ieeeusa.org/elections/nominations.html>

IEEE-USA EXPANDS GRASSROOTS ACTIVITIES

Russell Harrison has joined IEEE-USA's government relations staff as legislative representative for grassroots activities. Harrison will develop IEEE-USA's CARE grassroots program, with the twin goals of recruiting a strong core of grassroots advocates and strengthening the role of IEEE-USA's PACE Network in this area. Harrison comes to IEEE-USA from his position as director of grassroots programs for the Institute of Scrap Recycling Industries.

IEEE-USA'S PUBLIC POLICY PRIORITIES FOR 108TH CONGRESS (2003)

A comprehensive list of IEEE-USA's public policy priority issues is available online at: <http://www.ieeeusa.org/forum/issues/>

IEEE-USA TABLETOP DISPLAYS AVAILABLE FOR IEEE SECTION AND SOCIETY MEETINGS

IEEE-USA has two tabletop displays available for Section and Society use. To reserve a display, please contact Helen Hall at 1-202-785-0017, or by e-mail at h.hall@ieee.org. The display will be available on a first come, first serve basis. If you are interested in purchasing your own display, contact Prodisplays at 1-800-989-2146 or www.prodisplays.com. See a picture of the display online at: <http://www.ieeeusa.org/notable/display.htm>

JOB IMPORTING, EXPORTING SEEN AS HURTING U.S. HIGH-TECH WORKERS

Despite losing 560,000 high-tech jobs in 2001-2002, the United States imported almost 800,000 workers through the H-1B program during roughly that same period, notes IEEE-USA President Elect John W. Steadman Go to the news release at <http://ieeeusa.org/releases/2003/032403pr.html>

UNEMPLOYMENT RATE FOR ELECTRICAL ENGINEERS SKYROCKETS TO RECORD LEVEL WASHINGTON (April 28, 2003) - The unemployment rate for electrical engineers (EEs) rose to an unprecedented 7.0 percent in the first quarter of 2003, according to the U.S. Department of Labor. The rate stood at 3.9 percent in the previous quarter, and is a full percentage point above the quarterly figure for all workers.

The previous high quarterly EE jobless rate was 4.8 percent (second quarter, 2002). It's difficult to compare the figures, however, because the Bureau of Labor Statistics (BLS) has revamped its occupational classifications and reporting conventions to produce more detailed and accurate reports.

"Despite the change in the bureau's accounting and reporting methods, these unemployment figures are alarming," IEEE-USA President-Elect John Steadman said. "We knew anecdotally that things were bad for many in engineering and computer fields, and these statistics confirm our concerns for engineering employment."

The BLS report showed an unemployment rate for computer software engineers at 7.5 percent, and at 6.5 percent for computer hardware engineers, two of the bureau's new occupational categories. Computer scientists, including systems analysts, showed a slight improvement in joblessness, dropping from 5.1 percent at the end of 2002 to 4.9 percent. Computer programmers recorded a first-quarter rate of 6.7 percent.

When the number of unemployed EEs is added to each of the above computer categories, 172,000 high-tech professionals are out of work. Computer software engineers led the way with 62,000.

To help mitigate unemployment for U.S. high-tech professionals, IEEE-USA is calling on Congress to return the H-1B visa quota to its historical level of 65,000. The current cap is 195,000. IEEE-USA is also concerned about potential abuses in the L-1 intracompany visa transfer program. Business Week magazine reported in March that 329,000 people were working in the United States on L-1 visas in 2001, many in high-tech sectors.

"While we realize the sluggish U.S. economy is responsible for much of the unemployment," Steadman said, "we can't discount the role played by the continuing influx of foreign workers on temporary work visas, and the dramatic increase in offshore outsourcing. Congress needs to create incentives that help to spur the growth and retention of high-value, high-tech jobs here in the United States."

IEEE-USA APPLAUDS PASSAGE OF NANOTECHNOLOGY BILL

WASHINGTON (May 2, 2003) - The House Science Committee on Thursday approved H.R. 766, the Nanotechnology Research and Development Act of 2002. The legislation authorizes \$2.36 billion over three years for nanotechnology R&D programs at the National Science Foundation (NSF), Department of Energy, Department of Commerce, NASA and the Environmental Protection Agency.

"IEEE-USA is pleased that the Science Committee has displayed leadership by approving this important piece of legislation," IEEE-USA Research & Development Policy Committee Chair Ron Hira said. "We look forward to working with the bill's sponsors to help educate other legislators on its importance."

Nanotechnology, or research and technology development at the atomic, molecular or macromolecular levels, is predicted by NSF to become a \$1 trillion global market in little over a decade.

"This bill, over time, will bolster our economy as well as add to our storehouse of knowledge," said Science Committee Chairman Sherwood Boehlert (R-N.Y.), primary sponsor of the legislation with Rep. Mike Honda (D-Calif.).

The IEEE Cincinnati Section Executive Committee
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